

On The Move

Dear Reader:

At the photo store, one can look across the aisle and immediately spot the Kodak film by the look of the company's boxes. Similarly, the color and shape of the Golden Arches sign seen from the highway communicates its intent long before the word McDonalds is ever visible.

Not to prematurely place OTT among these long-established American brands, but in our own smaller way we have initiated an effort that should lead to greater and more immediate recognition among the special constituencies that we serve. While we don't have a "for-profit" product to sell, we are "selling" a beneficent point of view—the idea that America can take control of its destiny by reducing its dependence on foreign oil while at the same time improving the quality of its air and creating new jobs. And so we are working to create a common look and feel for an OTT "brand" that will quickly identify everything we do—fact sheets, Clean Cities literature, various OTT-wide publications, and of course, the *OTT Times*—while at the same time reminding the reader of our shared Vision with just a glance. You'll notice many style changes as this effort evolves—please let us know what you think!

This issue may look a little different, but it features efforts immediately familiar to anyone interested in the alternative fuels arena. Biofuels are an effective arrow in the alternative fuels quiver, offering a number of benefits, many unique. While increased use of biofuels will help us meet our goals of

(Continued on page 2.)

BCI and OTT to open world's first commercial baggasse-to-ethanol facility

BC International Corporation (BCI) and OTT have begun a cost-shared partnership to demonstrate newly developed biomass-to-ethanol technology in a commercial scale plant, with a goal of producing fuel-quality ethanol at a start-up rate of 10 million gallons

bacterium, awarded a U.S. Patent, ferments both glucose and xylose, deriving increased ethanol yield per pound of feedstock.

BCI, which is investing \$34 million of the estimated \$40 million start-up cost, has purchased an idle ethanol



BC International
Corporation
Ethanol Plant in
Jennings,
Louisiana

per year, and at an ultimate production rate of 25 million gallons per year.

The initial feedstock to be utilized is baggasse, the otherwise unused remnant of cane sugar production which is usually landfilled. The facility will also be able to convert other waste feedstocks, including rice straw and sawdust, allowing for lower cost, non-corn based ethanol production, and providing benefits related to solid waste reduction as well.

The partnership will utilize a newly-developed organism called "KO-11," owned by BCI and developed by the University of Florida. The

plant in Jennings, Louisiana and will retrofit it to utilize the new technologies. Construction is expected to begin by year's end.

The effort is a cornerstone of OTT's Ethanol Project, which is seeking to demonstrate the commercial viability of

(Continued on page 4.)

INSIDE THIS ISSUE

- 2 NREL Mission Defined
- 3 A report from NEVC
- 3 Santos-Leon Profile
- 4 Coming events

A Report From: *The National Ethanol Vehicle Coalition*



The National Ethanol Vehicle Coalition (NEVC) is a specialized ad-hoc group formed to promote the use of the transportation fuel E-85, a gasoline blend that is up to 85% ethanol. Since it is a completely renewable, cleaner-burning and a domestically-sourced fuel, increased use of ethanol in the transportation sector enhances our nation's energy security, our domestic economy and the quality of our air. Indeed, the formal goal statement of NEVC is diverse, stating that the organization is striving to "promote the use of ethanol as an alternative fuel, enhance agricultural profitability, advance environmental stewardship, and further national energy independence."

NEVC is jointly supported by the Governors' Ethanol Coalition, the National Corn Growers Association and its affiliated state corn associations, and the domestic ethanol industry, including the Renewable Fuels Association. It was founded to give ethanol vehicle supporters across the country a single voice, and the groups often work in tandem on projects that specifically forward the mission of the NEVC.

One specific objective of the NEVC is to provide convenient E-85 fueling stations for consumers. It is easy and relatively inexpensive to make a standard gasoline fuel pump E-85 compatible, but the retrofit must be made to allow availability of high ethanol-content fuel. NEVC is working to educate fuel retailers, and to provide financial incentives for modifying their pumps. In 1996 and 1997, NEVC and its constituents helped add 40 new public E-85 filling stations in the Midwest, significantly expanding the availability of the fuel. OTT participated as a partner in this effort.

NEVC is also working to educate fleet managers on the benefits of E-85

vehicles, noting that in addition to its aggregate benefits, ethanol is an alternative fuel option that provides superior performance characteristics and familiar, "transparent" driving characteristics. For example, fueling is done in the conventional manner, and fuel flexibility is easy, since E-85 vehicles operate effectively on conventional gasoline when E-85 is not available.

For more information on the efforts of the National Ethanol Vehicle Coalition, contact Sandy Hentges, Associate Project Coordinator, NEVC, 3702 West Truman Blvd Suite 100, Jefferson City, MO 65109. 1-800-E85-8895.

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On The Move

(Continued from page 1.)

reducing oil dependence and air pollution, it will also provide an economic boost for America's farm industries, in many ways, the backbone of our nation. In addition, with the increasing concern over the global climate change issue, it pays to note the unmatched contribution that biofuels—derived from plants—make to breaking the cycle of carbon emissions.

OTT's portfolio of programs, from alternative fuels to heavy duty diesel R&D to new automotive propulsion systems, all provide energy security, economic and environmental benefits in different ways. Through this news-

letter and our other publications—now brought together with a "family" look—we hope to keep you informed on the potential benefits and evolving success of each of them.

Until next time—

Ann Hegnauer

OTT's Ethanol Program defines NREL's vital role in its efforts

As part of OTT's Government Performance Review Act (GPRA) implementation efforts to strategically align its resources in the highest value areas, the OTT Ethanol Program has specifically defined its main goals, as well as those of the National Renewable Energy Laboratory (NREL) in supporting its work.

All of NREL's ethanol-related efforts will now revolve around three specific areas:

- NREL will develop technology that will help lower the production costs of bioethanol, performing R&D to a) develop new pretreatment technologies to increase sugar yields,

b) reduce enzyme production costs and c) improve the capabilities of fermenting organisms to process sugars faster and with higher yields.

- NREL will provide expert technical and infrastructure support to commercialization efforts underway by private sector partners, including demonstration of process feasibility. Projects identified include, the Arkenol, BCI and Masada efforts (discussed elsewhere in this issue), as well as the "Quincy Library Group" project, which in-

volves producing ethanol from young trees, and the "Gridley Ricestraw" project, which involves producing ethanol from ricestraw.

- NREL will give special priority to communicating the benefits of its programs to national and international audiences by sponsoring conferences, lectures, websites, print documents, and taking advantage of all other relevant outreach avenues.

(Continued on page 4.)

Gerson Santos-Leon: From Puerto Rico to Washington, via Tennessee



Gerson Santos-Leon

Gerson Santos-Leon, leader of OTT's Ethanol Program, developed his strong concern for nature early on, as a boy growing up in Puerto Rico. He credits his grandfather, who instilled in him a deep love for Mother Earth.

"He lived in rural Puerto Rico, with a very close, daily relationship to the earth," Gerson remembers. "My recent life is much more complex and cosmopolitan, but I still live by a lot of what he taught me."

Many of Gerson's personal values are reflected in the Ethanol Team he leads, a technically and ethnically diverse group championing the goal of displacing a significant portion of polluting fossil fuels with cleaner burning ethanol. This displacement is achieved by converting agricultural

and municipal wastes that would otherwise be landfilled, providing a double win for the environment.

"We have a unique team of individuals, and I'm proud to be working with them," he said. "They are not only extremely talented, but they are all also willing to go the extra mile to ensure the success of our efforts."

Gerson has traveled a long way to join OTT, not just logistically, but culturally as well. As a senior at the University of Puerto Rico, he had the opportunity to take an internship, and later a job, with the Tennessee Valley Authority (TVA), his first trip to the continental U.S. This gave him valuable engineering experience, as well as a lifetime of good-natured stories concerning his accent with those of rural Tennesseans. It also led to his meeting his wife, Natalia, who, as fate would have it, was a fellow Puerto Rican who happened to be working in rural Tennessee at the time.

Professionally, his next step was into the nuclear power industry, about which he has mixed feelings.

"Ironically, nuclear power can be an environmentally friendly way to produce electricity, much cleaner than coal or oil," Gerson notes. "But, concerns over the nuclear waste issue tend to override these potential

benefits. I realized it would be a dead end, professionally."

While in Washington in the early '90s, Gerson met (current Deputy Assistant Secretary) Richard Moorer, who told him about DOE's accelerating efforts around utilizing biomass in transportation applications. He was intrigued, and took a position with OTT, earning increasing responsibility over the years in various biofuels efforts.

Gerson reports that at least one element of his nuclear career has stayed with him—its drive for quality management and accountability. Gerson has led the way in instituting performance management and measurement systems in programs he leads, and has found it successful in helping teams more effectively meet their goals.

In his spare time, Gerson likes to bike and jog, and, especially, read. However, he notes that all he has had time for in recent months is reading books with titles such as *What to Expect When You're Expecting*. You should be able to congratulate him on the birth of his first child by the time you read this. Likely, he and his wife will be planning one of their frequent trips back to Puerto Rico, to introduce their new arrival to their extended family.

Biomass-to-Ethanol

(Continued from page 1.)

biomass-to-ethanol technologies by the turn of the century. Two other OTT-sponsored commercial facilities are scheduled to open shortly after BCI's. One, led by Arkenol Corporation in California, is converting agricultural waste using a proprietary modified yeast technology. The other, led by Masada Resources, is converting the cellulosic material culled from Orange County, New York's municipal waste stream. It is expected that these pioneering ventures will effectively

demonstrate the viability of biomass-to-ethanol technologies, creating a new industry and inspiring additional private sector investments in large biomass-to-ethanol facilities across the country.

In addition to commercial success for forward-thinking companies, creating a more cost-effective source of ethanol using biomass-to-ethanol technologies offers a number of benefits for the nation. Ethanol, blended with gasoline, can displace

10% or more of current foreign oil demand, doing so easily and invisibly to the consumer, often without the need for additional equipment or infrastructure. In addition, ethanol is widely believed to be the most effective alternative fuel for reducing greenhouse gases (carbon emissions) in the transportation sector.

NREL Mission Defined

(Continued from page 3.)

Although NREL has been previously involved in all of these areas, the re-focus consolidates resources previously utilized in other areas, the number and diversity of which often spread resources non-optimally. According to Ethanol Program Manager Gerson Santos-Leon, the re-focus will help achieve maximum success for the unique combination of people and equipment centralized at the Lab, including a hand-picked core group of world-class biotechnologists, engineers and scientists, and bench- and pilot-

scale equipment unavailable anywhere else.

"NREL has always been a vital cornerstone in the development of ethanol technologies," said Santos-Leon. "Now they will be even more so."

Santos-Leon also notes that the new NREL goals are in harmony with the recently prioritized goals of the overall Ethanol Program. These include: more closely integrating nationwide ethanol efforts for maximum success, increased contractor

accountability, and an overall push to improve outreach efforts to more strongly explain the benefits of ethanol fuel such as foreign oil displacement, improved air quality, reduced solid waste, and increased employment, especially in rural areas.

COMING EVENTS

November 18-20, 1997

Eco Expo

Washington, D.C.

FOR MORE INFORMATION about this event, call Marc Merson at 818-906-2700.

November 18-19, 1997

International Alternative Fuels Conference & Trade Show

Dallas, Texas

FOR MORE INFORMATION about this event sponsored by the Texas General Land Office, call 1-800-203-8450.

December 11-17, 1997

The 14th International Electric Vehicle Symposium and Exposition

Orlando, FL

FOR MORE INFORMATION about this event, call Pam Turner at 415-548-0311.

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